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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

ED 065620

TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

FOOD SERVICE WORKER II (hotel & rest.) 317.884

S-274

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EDUCATION & WELFARE
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U. S. Employment Service
in Cooperation with
California State Employment Service

July 1963

GATB # 2456

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

FOOD SERVICE WORKER (medical ser.) 2-29.16

B-551

Summary

The General Aptitude Test Battery, B-1002B. was administered to a final sample of 49 male and 51 female Food Service Workers 2-29.16, employed at four facilities of the Los Angeles County Hospital System, Los Angeles, California. The criterion consisted of supervisory ratings. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data, and their combined selective efficiency, Aptitudes Q-Clerical Perception, F-Finger Dexterity, and M-Manual Dexterity, were selected for inclusion in the test norms.

GATB Norms for Food Service Worker 2-29.16, B-551.

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
Q	CB-1- B	65	Q	Part 1	70
F	CB-1- O CB-1- P	75	F	Part 11 Part 12	70
M	CB-1- M CB-1- N	90	M	Part 9 Part 10	85

Effectiveness of Norms

The data in Table IV indicate that only 67 percent of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the above norms, 74 percent would have been good workers. 33 percent of the non-test-selected workers used for this study were poor workers; if the workers had been test-selected with the above norms, only 26 percent would have been poor workers.

TECHNICAL REPORT

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Food Service Worker (medical ser.) 2-29.16.

II. Sample

During the period May 28, 1962 through October 19, 1962, the General Aptitude Test Battery, B-1002B, was administered to 134 Food Service Workers employed in four facilities of the Los Angeles County Hospital System. Thirty-four workers were excluded from the sample: eleven were excluded because they were unable to understand and follow test instructions, and experienced difficulty with the test; twenty-two were excluded because they had less than six months experience, and had not completed the required probationary period; one person was excluded due to the fact that she was undergoing formal dismissal proceedings. Therefore, the final sample consisted of 49 male and 51 female Food Service Workers, for a total of 100 employed workers. The names of participating County Hospital facilities, location, number of workers in the sample, and dates of testing for each, are as follows:

Name	Location	Number	Testing Dates
Los Angeles County General Hospital	Los Angeles, California	62	May 28,29,&31, 1962; June 4,6,7,8,12, and 14, 1962
John Wesley County Hospital	Los Angeles, California	14	August 6,7,8,9, and 10, 1962
Olive View Hospital	Sylmar, California	30	August 20,21,22,23, and 24, 1962
Rancho Los Amigos Hospital	Downey, California	28	October 15, 16,17,18, and 19, 1962

Applicants for Food Service Worker jobs in the Los Angeles County Hospital System are screened and selected by the Personnel Office of each hospital facility. A written Los Angeles County Civil Service examination, consisting of 30 general knowledge questions, is administered to selected candidates. Candidates must correctly answer 21 of the questions, and obtain a score of 70% on the written test to qualify for oral interview. Oral interviews are conducted by a member of the Hospital Personnel Department and the Director of Dietetics. An appraisal of personal traits and fitness is made at the oral interview. The Food Service Worker classification is an entry job for the Los Angeles County Civil Service. No experience is required. Educational stipulations are not stated, however, candidates must possess ability to read and write. All workers must be at least 18 years of age. Retirement is mandatory at 70 years of age. Workers must complete a six-month probationary period. Specific job skills are acquired through on-the-job training only. On-the-job training includes scheduled orientation and formal training sessions on hospital regulations, policies, and procedures; and also sanitary regulations, methods, and standards in handling, preparation, and distribution of food-

stuffs. All workers in the sample perform comparable work, have completed their probationary period of six months, and are considered experienced workers.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

N = 100	M	σ	Range	r
Age (years)	36.1	11.9	19-61	.038
Education (years)	11.3	1.7	7-15	-.163
Experience (months)	46.5	11.2	6-128	.031

III. Job Description

Job Title: Food Service Worker (medical ser.) 2-29.16

Job Summary: Performs one or combination of following tasks, as assigned, in kitchen, bakery, dining room, dishroom, ward kitchen, and other sections of hospital dietary division, to assist in preparation and serving of foods and beverages: Cleans, cuts, mixes, grinds, mashes, and otherwise prepares foods, such as meats and vegetables, for cooking, using such kitchen equipment as knives, paring machines, slicers, food mixers, and vegetable mashers. Watches, turns, and stirs cooking foods. Bones, carves, and slices cooked meats and fowl. Prepares fruit and vegetable salads, according to formula. Mixes ingredients, by hand or using mixing machines, to make desserts, such as ice cream, jello, and custards. Fills paper cups with ice cream, jello, and custards, using automatic filling machine. Weighs, apportions, and labels special diet foods. Packs diet foods in containers, according to diet tickets. Opens canned foods. Fills bottles with juices and other liquids, using bottling machine. Dishes up hot and cold prepared foods into serving containers. Apportions and issues quantities of prepared hot and cold foods, special diets, beverages, dishware, silver, trays, and other supplies, such as paper plates, cups, and napkins, according to food and supply distribution charts, from serving stations in main kitchen to food carts being delivered to patients' wards and dining rooms. In hospitals having automatic system for food assembly, fills food trays moving along automatic conveyor. Loads containers or trays of food on carts. Pushes or pulls food carts to dining rooms or to elevators for delivery to dining rooms and ward kitchens. Dishes up foods from carts in ward kitchens to trays for hospital patients, according to diet charts. Distributes trays to patients. Removes empty trays. Cooks items, such as meat, eggs, potatoes, hot cakes, and french toast on grill, in doctors' dining room and nurses' cafeteria, or ward kitchen. Brews coffee and tea, and prepares cocoa and other beverages. Receives and stores fruits, vegetables, foodstuffs, and other warehouse deliveries. Cleans and maintains food carts, refrigerators, stationary cooking equipment, and miscellaneous food preparation and packaging machinery. Washes dishes, glassware, silverware, pots, trays, and other kitchen utensils by hand or machine. Washes walls, sweeps and mops floors, and cleans work area. Collects garbage, and disposes of it, using garbage disposal.

IV. Experimental Battery

All the tests of the GATB, B-1002B , were administered to the sample group.

V. Criterion

The criterion data collected consisted of two sets of independent ratings made by the first-line supervisor on USES Form SP-21, "Descriptive Rating Scale." A period of at least two weeks elapsed between the first and second ratings. The rating scale consisted of nine items covering different aspects of job performance, with five alternatives for each item. Weights of one through five, indicating the degree of job proficiency attained, were assigned to the alternatives. A reliability coefficient of .79 was obtained for the criterion. Therefore, the two sets of ratings were combined, resulting in a distribution of final criterion scores of 38-81, with a mean of 62.3 and a standard deviation of 9.4.

VI Qualitative and Quantitative Analyses

A. Qualitative Analysis

On the basis of the job analysis data, the following aptitudes were rated "important" for success in this occupation:

Clerical Perception (Q) - required in reading and following work schedules, food distribution charts, formulas, and instructions to obtain and prepare specified foods, special diets, and beverages; in perceiving pertinent details on food distribution and ward charts to determine amounts and kinds of food for specified destination; and in counting out portions and determining quantities and types of foods to be issued to ward food carts.

Motor Coordination (K) - required in working swiftly and coordinating eyes, hands and fingers when assembling food trays on moving conveyor belt, or when working as member of a team in dishing up food and placing containers of food on carts or trays, as they are pushed, pulled, or carried along at food distribution and assembly stations; in peeling, cutting, slicing vegetables, fruits, and meats; and in feeding and taking dishes off of automatic dishwasher.

Finger Dexterity (F) - required in cleaning, trimming, slicing, and dicing vegetables, fruits and meats; in portioning foods; in turning dials and valves on kitchen equipment; in removing paper dishes, napkins, and other waste materials from food and bus carts; in sorting and stacking dishes; and in lining pans and shelves with paper.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 100

Aptitudes	M	σ	r
G-Intelligence	82.3	13.4	.035
V-Verbal Aptitude	85.4	27.7	-.026
N-Numerical Aptitude	79.7	27.0	.033
S-Spatial Aptitude	90.9	33.2	.052
P-Form Perception	84.6	20.9	.030
Q-Clerical Perception	90.7	14.6	-.010
K-Motor Coordination	90.6	19.0	.222*
F-Finger Dexterity	86.6	17.9	.264**
M-Manual Dexterity	97.1	17.1	.350**

* Significant at the .05 level
** Significant at the .01 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important						X	X	X	X
Irrelevant				X					
Relatively High Mean				X		X	X		X
Relatively Low Sigma	X					X			
Significant Correlation with Criterion							X	X	X
Aptitudes to be Considered for Trial Norms						X	X	X	X

Trial norms consisting of various combinations of Aptitudes Q,K,F and M with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of Q-70, F-70 and M-85 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 33 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal workers.

Table IV shows the relationship between test norms consisting of Aptitudes Q, F and M with critical scores of 70, 70 and 85, respectively, and the dichotomized criterion for Food Service Worker 2-29.16. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

Validity of Test Norms for Food Service Worker 2-29.16
(Q-70, F-70 and M-85)

N = 100	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	21	46	67
Poor Workers	17	16	33
Total	38	62	100

Phi Coefficient = .195
χ^2 = 3.820
P/2 < .05

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes Q, F and M with minimum scores of 70, 70 and 85, respectively, have been established as B-1002 norms for Food Service Worker 2-29.16. The equivalent B-1001 norms consist of Q-65, F-75 and M-90.

IX. Determination of Occupational Aptitude Pattern

The data for this study did not meet the requirements for incorporating the occupation studied into any of the 35 OAP's included in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962. The data for this sample will be considered for future groupings of occupations in the development of new occupational aptitude patterns.